



The study of mechanical properties of colon cancer cell line (Ht29) after treatment with albendazole by micropipette aspiration and atomic force microscopy

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ABSTRACT

The ranking of colon cancer reported in the world is third in the number of patients and second in the number of deaths. An important issue in cancer studies is the changes in the mechanical properties of the cells and their effects on the cellular responses to biochemical and biophysical signals and determine injuries factors. In this study, the viscoelastic properties of grade II Ht29 colon cancer cell line were investigated with and without treatment by albendazole by Atomic Force Microscopy and Micropipette Aspiration methods. Through these two methods, the amounts of microtubules as the major factors in creating the cell mechanical properties were assessed and compared in treated and untreated cancer cells. The overall results showed the significant decreasing in the amounts of tubuline in cancer cell lines after treatment by albendazole is in agreement with its cytotoxicity. So in line with other studies, the cancer cells are face with reduction in the cell mechanical properties by reducing the amount of microtubules relative to normal cells and the albendazole strengths this property.

Key words: Colon cancer cell line; Albendazole; Mechanical Properties; Atomic Force Microscope; Micropipette Aspiration